

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): A lithium battery separator having a shutdown function comprising:

a porous carrier comprising a porous inorganic, nonelectroconductive coating layer that is bonded to a shutdown layer comprising meltable shutdown particles.

Claim 2 (Previously Presented): The separator according to claim 1, wherein said porous carrier is less than 50 μm in thickness and is bendable down to a radius of 0.5 mm to 50 mm without damage.

Claim 3 (Previously Presented): The separator according to claim 1, wherein said porous carrier comprises woven or non-woven polymeric or glass fibers.

Claim 4 (Previously Presented): The separator according to claim 3, wherein said porous carrier is a polymeric nonwoven fiber.

Claim 5 (Previously Presented): The separator according to claim 3, wherein said porous carrier comprises polymeric fibers that are polyacrylonitrile, polyester, polyolefin, or mixtures thereof.

Claim 6 (Previously Presented): The separator according to claim 1, wherein said porous carrier is less than 30 μm in thickness.

Claim 7 (Previously Presented): The separator according to claim 1, wherein said porous inorganic coating layer, present on said porous carrier, comprises oxide particles of the elements Al, Si and/or Zr from 0.5 to 10 μm in size on average.

Claim 8 (Currently Amended): The separator according to claim 1, wherein said shutdown particles have an average size (D_w) which is greater than the average pore size (d_s) of the pores of said porous inorganic, nonelectroconductive coating layer ~~porous inorganic layer~~.

Claim 9 (Previously Presented): The separator according to claim 8, wherein the layer of shutdown particles has a thickness (z_w) which is approximately in the range from said average size of said shutdown particles (D_w) up to 10 times said particle size D_w .

Claim 10 (Previously Presented): The separator according to claim 1, wherein said shutdown particles contain at least one polymer, polymer blend, natural wax or artificial wax.

Claims 11-23 (Canceled)

Claim 24 (Previously Presented): A process of preparing a battery comprising, inserting the separator of claim 1 into a battery cell.

Claim 25 (Previously Presented): A battery comprising:
the separator of claim 1, and
one or more additional components.

Claim 26 (Previously Presented): The battery of claim 25 that is a lithium battery or a lithium high power or high energy battery.

Claim 27 (Previously Presented): The battery of claim 25, wherein the meltable shutdown particles melt at a temperature ranging from 120°C to 150°C and close the pores in the separator, thus suppressing the ion flux in the battery.

Claim 28 (Currently Amended): The separator of claim 1, wherein the porous inorganic, nonelectroconductive coating layer is ~~fully~~ ceramic.

Claim 29 (Previously Presented): The separator of claim 1, wherein the meltable shutdown particles contain at least one natural or artificial wax.

Claim 30 (Previously Presented): The separator of claim 1, wherein the meltable shutdown particles contain at least one polyolefin.

Claim 31 (Currently Amended): The separator of claim 1, wherein the meltable shutdown particles having an average particle size (D_w) that is ~~greater than the average pore size (d_s) of the pores in said inorganic, nonelectroconductive coating layer~~ within the range of d_s to less than $5 d_s$.

Claim 32 (Previously Presented): The separator of claim 1, wherein the meltable shutdown particles having an average particle size (D_w) ranging from d_s to less than $5 d_s$, wherein d_s is the average pore size of the inorganic, nonelectroconductive coating layer.

Claim 33 (Previously Presented): The separator of claim 1, wherein the meltable shutdown particles form a layer having a thickness ranging from 1 to $2 D_w$, wherein D_w is the average particle size of the shutdown particles.

Claim 34 (New): A separator for a lithium battery that is less than $50 \mu\text{m}$ thick, has a porosity ranging from 30% to 80%, has a breaking strength of not less than 1N/cm , and is bendable down to a radius of 100 mm without damage, said separator comprising:

a carrier that is less than $30 \mu\text{m}$ thick comprising polymeric fibers which have a softening temperature of more than 100°C ,

a porous inorganic, nonelectroconductive coating layer on said carrier comprising at least one oxide of aluminum, silicon, and/or zirconium, and

a shutdown layer on said nonelectroconductive coating layer containing particles of polypropylene wax or polyethylene wax that melt at a specific temperature and close the pores in the porous inorganic nonelectroconductive coating layer.